

ABSTRACT OF THE DISCLOSURE

An electromagnetic actuator with high performance such as high speed and high resolution is inexpensively provided with solutions to problems associated with power supply and leakage flux, which have been involved in the structure of a moving coil type and have been shortcomings of a VCM type actuator. A composite electromagnetic actuator apparatus employs the foregoing electromagnetic actuator. The electromagnetic actuator is equipped with a stationary assembly that includes two coils disposed coaxially with each other inside a hollow stator yoke composed of a soft magnetic material, and a movable assembly composed of a movable magnet unit and a movable yoke unit both disposed inside the coils with a very small clearance therefrom so as to be movable in the axial direction, wherein the movable assembly travels in the axial direction by the interaction between a magnetic field generated by the movable magnet unit and a current passing through the coils.